accordance with the teachings of the present invention. Referring to both FIGS. 9A and 9B, the process S200 begins from a start state and proceeds to process step S202, where the read element 166 reads the servo bursts A, B, C and D upon receiving a control signal from the servo controller 132. The servo information obtained is provided to the servo controller 132, which generates a signal to the voice coil motor 118 (see FIG. 3) to position the write element 164 along the center of a dedicated track 192. The process S200 then proceeds to step S204 to retrieve the offset information that was previously obtained using the process S180 (as shown in FIG. 7B) and which was stored in memory 140 (FIG. 4).

Next, the process S200 advances to process step S206, where the write element 164 is first aligned with the centerline of the dedicated track 192 using the position offset information stored in memory 140. The process S200 then writes the position offset information on the dedicated track 192. Other system parameters, such as the read/write channel parameters, may also then be stored on the dedicated track 192. Note that during the process S200, the read element 166 is off the track centerline while the write element 164 is aligned with the track centerline.

During the power-up process S220, as shown in FIG. 10B, the servo controller 132 first directs read element 164 to read the servo bursts A, B, C, D on the dedicated track 192 (step S222). Based on the servo information read, the servo controller 132 directs the voice coil motor 118 (FIG. 3) to align the read element 166 with the centerline of the dedicated track 192 (step S224). When aligned, the read element 164 reads all the previously stored position offset values and other system parameters from the dedicated track 192 (step S226). This information may be stored back in the memory 140 for later use. Alternatively, it may be used immediately following the read process for various servo operations. The information thus retrieved may be used during the read operation.

Through the use of the present invention, the skew or position offset information used in the alignment of a read element of an MR head may be provided and stored, so that the read element of an MR head may be accurately aligned with the centerline of written data during a read operation, without any additional calibration.

While certain exemplary embodiments have been described and shown in the accompanying drawings, it is to be understood that such embodiments are merely illustrative of and not restrictive on the broad invention, and that this invention not be limited to the specific constructions and arrangements shown and described, since various other modifications may occur to those ordinarily skilled in the art.

What is claimed:

1. A disk for a hard disk drive having a head including a read element and a write element, the read element and the write element having a position offset, comprising:

a disk having a plurality of tracks, each track having a centerline, one of said tracks having a servo field and a calibration field with a calibration field centerline that is offset from the track centerline, said calibration field includes a single calibration burst providing a burst profile with a peak value, that is used to generate a position offset signal, said calibration burst being written by said head, a second one of said tracks having a servo field and a calibration storage field with a calibration storage field centerline that is centered along the track centerline, wherein information representing the position offset is stored in the calibration storage field.

2. The disk as recited in claim 1, wherein said position offset signal has a position offset signal amplitude that is stored in said calibration storage field.

3. The disk as recited in claim 1, wherein said track includes a data field, said calibration field being located in said data field.

4. The disk as recited in claim 1, wherein said servo field of said one of said tracks and said servo field of said second one of said tracks each contains a set of servo bits including an A bit and a B bit that have a common boundary located at the track centerline.

5. A hard disk drive, comprising:

a housing;

an actuator arm mounted to said housing;

a head that is mounted to said actuator arm, said head having a write element and a read element, the read element and the write element having a position offset;

a spin motor mounted to said housing; and

a disk attached to said spin motor, said disk having a plurality of tracks that each have a centerline, one of said tracks having a servo field and a calibration field with a calibration field centerline that is offset from the track centerline, said calibration field includes a single calibration burst providing a burst profile with a peak value, that is used to generate a position offset signal, said calibration burst being written by said head, a second one of said tracks having a servo field and a calibration storage field with a calibration storage field center line that is centered along the track centerline, wherein information representing the position offset is stored in the calibration storage field.

6. The hard disk drive as recited in claim 5, wherein said position offset signal has a position offset signal amplitude that is stored in said calibration storage field.

7. The hard disk drive as recited in claim 5, wherein said track includes a data field, said calibration field being located in said data field.

8. The hard disk drive as recited in claim 5, wherein said servo field of said one of said tracks and said servo field of said second one of said tracks each contains a set of servo bits including an A bit and a B bit that have a common boundary located at the track centerline.

9. A method for calibrating and storing information representing the offset between a read element and a write element of a head in a hard disk drive, comprising the steps of:

a) providing a disk having a plurality of tracks each having a centerline, a first one of said tracks having a servo field and a single calibration burst providing a burst profile with a peak value, said calibration burst having a calibration burst centerline that is offset from the track centerline, a second one of said tracks having a servo field and a calibration storage field with a calibration storage field centerline that is centered along the track centerline;

b) measuring a profile of the single calibration burst;

c) generating a position offset signal corresponding to the sensed single calibration burst, said position offset signal having an offset amplitude; and

d) storing said position offset signal amplitude in the calibration storage field.

10. The method of claim 9 further comprising the steps of:

e) aligning said read element with the calibration storage field centerline; and

f) reading the position offset signal amplitude located on the calibration storage field.

11. The method as recited in claim 9, wherein step b) comprises the steps of:

b1) aligning a read element over a first position of the track that −50% from the track centerline;

b2) sensing the magnitude of the calibration burst at the first position:

b3) aligning the read element over a plurality of positions of the track that is between −50% from the track center line and +50% from the track centerline;

b4) sensing the magnitude of the calibration burst at the plurality of positions; and

b5) storing the magnitudes of the calibration burst corresponding to the first position and the plurality of positions as the provide of the calibration burst.

12. The method as recited in claim 9, further comprising the steps of:

g) aligning the read element over the track centerline; and

h) moving the read element in accordance to the position offset signal amplitude stored in the memory device.

* * * * *

13. A disk for a hard disk drive that has a head which contains a read element and a write element that are separated by a position offset, comprising:

the disk that has a plurality of tracks which each have a track centerline, said tracks including a first dedicated track that contains a position offset information aligned with the centerline of said first dedicated track.

14. The disk as recited in claim 13, wherein the tracks include a second dedicated track that includes a data area and a servo area, said data area having a centerline offset from a centerline of said servo area.

15. The disk as recited in claim 14, wherein said first dedicated track is a maintenance track and said second dedicated track is a data track.

16. The disk as recited in claim 14, wherein said second dedicated track includes an A servo burst and a B servo burst that have a common boundary with the centerline of said second dedicated track, a C servo burst aligned with the centerline of said second dedicated track and a D servo burst offset from the centerline of said second dedicated track.

17. A hard disk drive, comprising:

a spin motor;

an actuator arm;

a head that is coupled to said actuator arm, said head containing a read element and a write element separated by a position offset; and,

a disk that is attached to said spin motor and coupled to said head, said disk that has a plurality of tracks which each have a track centerline, said tracks including a first dedicated track that contains a position offset information aligned with the centerline of said first dedicated track.

18. The disk as recited in claim 17, wherein the tracks include a second dedicated track that includes a data area and a servo area, said data area having a centerline offset from a centerline of said servo area.

19. The disk as recited in claim 18, wherein said first dedicated track is a maintenance track and said second dedicated track is a data track.

20. The disk as recited in claim 18, wherein said second dedicated track includes an A servo burst and a B servo burst that have a common boundary with the centerline of said second dedicated track, a C servo burst aligned with the centerline of said second dedicated track and a D servo burst offset from the centerline of said second dedicated track.

21. A method for writing a position offset onto a disk of a hard disk drive, comprising:

aligning a write element of a head, that has a read element separated from the write element by a position offset, with a centerline of a first dedicated track of a disk; and,

writing a position offset information onto said first dedicated track so that the position offset information is aligned with the centerline of said first dedicated track.

22. The method of claim 21, further comprising aligning the read element with the centerline of said first dedicated track when said hard disk drive is initially powered on and reading said position offset information.

23. The method of claim 21, further comprising aligning the read element with the centerline of a second dedicated track by reading an A servo burst and a B servo burst that have a common boundary with the centerline of the second dedicated track, a C servo burst aligned with the centerline of the second dedicated track and a D servo burst offset from the centerline of the second dedicated track, and reading the position offset.

24. A disk for a hard disk drive that has a head which contains a read element and a write element that are separated by a position offset, comprising:

a disk that has a plurality of tracks which each have a track centerline, at least one of said tracks having a calibration burst that provides a varying burst profile with a peak value that is used to generate a position offset.

25. The disk as recited in claim 24, wherein said calibration burst is offset from the centerline of the said at least one of said tracks.

26. The disk as recited in claim 24, wherein said calibration burst is located within a data field of said at least one of said tracks.

27. The disk as recited in claim 25, wherein said at least one of said tracks includes an A servo burst and a B servo burst that have a common boundary with the centerline of said at least one of said tracks, a C servo burst aligned with the centerline of said at least one of said tracks and a D servo burst offset from the centerline of said at least one of said tracks.

28. A hard disk drive, comprising:

a spin motor;

an actuator arm;

a head that is coupled to said actuator arm, said head containing a read element and a write element separated by a position offset; and,

a disk that is attached to said spin motor and coupled to said head, said disk having a plurality of tracks which each have a track centerline, at least one of said tracks having a calibration burst that provides a varying burst profile with a peak value that is used to generate a position offset.

29. The disk as recited in claim 28, wherein said calibration burst is offset from a centerline of said at least one of said tracks, wherein said at least one of said tracks includes an A servo burst and a B servo burst that have a common boundary with the centerline of said at least one of said tracks, a C servo burst aligned with the centerline of said at least one of said tracks and a D servo burst offset from the centerline of said at least one of said tracks.

29. A method for determining a position offset between a write element and a read element of a head in a hard disk drive, comprising:

reading a calibration burst on a track of a disk, said calibration burst having a varying burst profile with a peak value;

comparing a read value with the varying burst profile to determine a position offset.

34. The method of claim 29, further comprising aligning the read element with the centerline of said track by reading an A servo burst and a B servo burst that have a common boundary with the centerline of said track, a C servo burst aligned with the centerline of said track and a D servo burst offset from the centerline of said track, and reading the position offset.